APPENDIX C: ALLOCATIONS

Load Allocation – Calculations

Important Figures Used in Calculations

Numeric Target = 200 mg/L
Conversion factor from mg/L to tons = 0.0013597
Future growth = 3% (based on calculations for future growth in the New River Sedimentation/ Siltation TMDL)

Source Analysis Figures Used in Calculations

Drain Name	Avg Flow (ac-feet/year)	Avg TSS @ Outlet (mg/L) aka concentration	Avg Sediment Load (tons/year) aka load
Niland 2	1264.0	410.0	704.7
P	2688.1	235.0	858.9
Pumice	41388.1	610.0	34327.6
All Drains	45340.2	418.3	25789.6

Calculations

% of Total Flow

Niland 2 $\quad \dfrac{1264.0}{45340.2} = 0.0279 = 2.8\%$

P $\quad \dfrac{2688.1}{45340.2} = 0.0593 = 5.9\%$

Pumice $\quad \dfrac{41388.1}{45340.2} = 0.9128 = 91.3\%$

Total Concentration

Total Concentration = Numeric Target - (instream erosion + wind deposition) - Margin of Safety
= 200 mg/L   - 10 mg/L   - 10 mg/L
= 180 mg/L

Total Load (Without Future Growth)

For all drains combined:
Load = (180 mg/L) (45340.2 acre-feet) (0.0013597) = 11,096.8 tons

For natural sources:
Load = (10 mg/L) (45340.2 acre-feet) (0.0013597) = 616.5 tons

For Margin of Safety:
Load = (10 mg/L) (45340.2 ac-feet) (0.0013597) = 616.5 tons

Therefore, total load is 11,096.8 + 616.5 + 616.5 = 12,329.8 tons

Load Allocation – Calculations

Load Allocations for Individual Drains

Niland 2	11,096.8 x 0.0279	=	309.6 tons
P	11,096.8 x 0.0593	=	658.0 tons
Pumice	11,096.8 x 0.9128	=	10,129.2 tons

Load Allocation for Future Growth

Future Growth	11,096.8 x 0.03		=	332.9 tons

Load Allocations for Individual Drains, Adjusted to Include Future Growth

Niland 2	11,096.8 x 0.0279	=	309.6 tons without future growth
	332.9 x 0.0279	=	9.3 tons for future growth
	309.6 - 9.3	=	300.3 tons with future growth
P	11,096.8 x 0.0593	=	658.0 tons without future growth
	332.9 x 0.0593	=	19.7 tons for future growth
	658.0 - 19.7	=	638.3 tons with future growth
Pumice	11,096.8 x 0.9128	=	10,129.2 tons without future growth
	332.9 x 0.9128	=	303.9 tons for future growth
	10,129.2 – 303.9	=	9,825.3 tons with future growth

% of Total Load Allocation, Adjusted to Include Future Growth

Niland 2	300.3 tons / 11,096.8 tons =	.0271 =	2.7%
P	638.3 tons / 11,096.8 tons =	.0575 =	5.8%
Pumice	9,825.3 tons / 11,096.8 tons =	.8854 =	88.5%
Future growth	332.9 tons / 11,096.8 tons =	.0300 =	3.0%
TOTAL			100.0%

Comparison of Current to Target Sediment Load

Drain Name	Current Avg Sed Load (tons/year)	Target Avg Sed Load (tons/year)	% Reduction
Niland 2	704.7	300.3	57%
P	858.9	638.3	26%
Pumice	34,327.6	9,825.3	71%
All Drains	25,789.6	10,763.9	58%

Load Allocation – Calculations

Summary

Table C-1: Load Allocations Summary

Sediment Source	# Of Drains Included in Segment	Sediment Load Allocation (tons/year)
Niland 2 drain	1	300.3
P drain	1	638.3
Pumice drain (including 5 Vail drains that drain into it)	6	9,825.3
Future Growth	None	332.9
Total Load Allocation for drains @ TSS = 180 mg/L	**8**	**11,097**
Natural Sources	Not applicable	616.5
Margin of Safety	Not applicable	616.5
Total Load Allocation for other sources @ TSS = 20 mg/L	**Not applicable**	**1,233**
TOTAL ASSIMILATIVE CAPACITY (Total Allocation for all sources @ TSS = 200 mg/L)	**8**	**12,330**